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ABSTRACT

The Knowledge Network of Washington (KNOW-NET) Dissemination Project in Washington State from 1980 to 1985 is described prior to and following funding by the National Institute of Education. As a state capacity building project, KNOW-NET had five major components: (1) coordination/leadership; (2) building information resources; (3) building linkages; (4) treating equity issues; and (5) collaborative relationships. The number of clients increased over each of the 5 years, and client satisfaction reactions were consistent at 80% to 85%. Problems included the inability to provide clients with full documents and the need to provide continuing assistance in evaluating and applying information obtained. Project staff concluded that teachers and administrators will seek and use research information in their school improvement projects when it is known to be accessible and assistance is provided with follow-up results. Following the termination of federal funds, the state legislature is looked to for continuation of information services to schools. Four appendices provide a list of selected uses of KNOW-NET research and development information by agency staff, a summary of numerical data from impact reports, a tally of satisfaction surveys, and the text of the Educational Information Clearinghouse bill which has been approved by the Senate of the State of Washington, but had not been passed by the House at the end of the 1985 session. (KM)

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Final Report

Grant No. NIE-G-80-0021

The KNOW-NET Dissemination Project (Knowledge Network of Washington)

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ABSTRACT

The KNOW-NET (Knowledge Network of Washington) Dissemination Project in Washington State, 1980-1985, is described. Prior to funding by the National Institute of Education, application of research results to school improvement was limited by minimal or fragmented access to R&D and other relevant information, particularly at the building and school district levels. As a state capacity building project, KNOW-NET had five major components: Coordination/leadership (establishment of a research/program information clearinghouse and a statewide linker network); building information resources (database searching and publication of resource books and handouts); building linkages (training information users, linkers and independent searchers and demonstrating telecommunications for information exchange); treating equity issues (providing equal access to information and teaming with state equity staff in joining projects); and collaborative relationships (Northwest Regional Exchange, Northwest Regional Educational Laboratory, Washington State Library, Washington Library Network, U.S. Department of Education Region X, Project BEST/AECT). The number of clients increased over each of the five years, with an estimated average of 4,000 users per year. Client satisfaction reactions for information searches and for training were consistent at 80-85%. Problems included the inability to provide clients with full documents and the need to provide continuing assistance in evaluating and applying information obtained. The most successful linkers were found to be library media specialists at local levels. A collegial approach by state agency staff was found to be the most effective. Project staff concluded that teachers and administrators will indeed seek and use research information in their school improvement projects when it is known to be accessible and if assistance is provided with follow-up requests. Most project staff remain as trainers and supervisors of school improvement projects following termination of federal funding. The state legislature is looked to for continuation of information services to schools. Appendices provide examples of information provided and uses to which it was put.

Introduction

The KNOW-NET Dissemination Project (Knowledge Network of Washington) at the Washington Superintendent of Public Instruction (SPI), was initially funded in 1980 by the National Institute of Education (NIE) as a state capacity building project to increase the use of educational research results in Washington Schools, for the dual purpose of improving school programs and increasing educational equity. The grant award was renewed in each of the ensuing four years, for a total of five years. During this period, the capacity of Washington state educators in the K-12 system to access and apply educational research results and other program improvement information was increased by a) the building of coordinated access to all relevant information, b) the provision of such information targeted to individual school needs and requests, and c) the training of educators to access and use this information, first through the project and subsequently on their own through linkers on their regular school staffs and/or their own microcomputers and modems.

STATEMENT OF THE PROBLEM: Section I of this report describes the program status prior to and following funding. As can be seen by the chart in this section, the problem, prior to project funding, may be stated in the following manner: There was no overall coordination of Research and Development (R&D) and other program information, either for the SPI staff or for school personnel in the field. There was minimal access to such information for school personnel, access to SPI publications was fragmented. There was limited SPI capacity for linking school staffs with coordinated R&D information and little field awareness of what information was available or capacity for accessing it themselves. Consequently, there was very limited application of research results to everyday school improvement projects and general reliance on others' interpretations of certain selection research when looking at school problems. In terms of equity, those districts with planning and development staffs or administrators who subscribed to certain search services were far better able than others to access appropriate information for decision-making.

METHODS: The major components of the project or methods which project staff used to build capacity and equity, are described in Coordination/ Leadership, Building Information Resources, and Building Linkages, Section II of this report, under three headings, which generally correspond to the three methods described in the introductory paragraph above for increasing the state's capacity. In addition, this section describes methods used to treat equity issues and collaborative relationships which assisted project efforts to reach the stated goals.

RESULTS: Section III presents the project results, including impact, client responsiveness and satisfaction levels. Also discussed in this section is the prognosis for institutionalization of project activities following the termination of federal funds.

CONCLUSIONS: The final section, Section IV, summarizes the project learnings and conclusions, for consideration of others with similar interests in promoting the application of research results and other program involvement information to decision-making in K-12 schools.

I. Program Status Prior to and Following Funding

	Prior to Funding	At Termination of Funding
A. Coordination/ Leadership	In Agency:	In Agency:
	1. No overall coordination of agency program information.	1. KNOW-NET coordinates information about agency programs for response to staff and outside inquiries.
	2. No overall coordination of program information from sources outside the agency.	2. KNOW-NET responds to staff and outside inquiries with information from the full range of state, regional and national resources.
	3. No coordinated staff access to research and other program information.	3. KNOW-NET provides centralized access to program information. Some 44 agency program staff regularly access this information for planning R&D efforts in the field, such as the annual Practitioners' Workshop, in which 30 school districts each year develop school improvement projects using research information provided by KNOW-NET. (See Appendix I for sample reports from agency staff on uses made of R&D information from KNOW-NET.)
	4. Fragmented inter-agency contact with other program information, training and development sources.	4. KNOW-NET has established ongoing information exchanges with the Washington State Library/Washington Library Network (WLN), the Commission for Vocational Education, Educational Service District (ESD) staffs, the Northwest Regional Exchange, the Washington Education Association (Instructional and Professional Development), the State Facilitator and its HI-NET system, and the Olympia area on-line searchers group (other state agencies and the Evergreen State College), among others.
	In Field:	In Field:
	5. No coordinated access to research and other program information for teachers and administrators (including staff of Educational Service Districts).	5. Inquiry by inquiry, KNOW-NET provides coordinated access to research and other program information from the agency from state/regional/national sources, and from other districts and ESDs across the state.
	6. Fragmented knowledge and use of agency as general program information source.	6. Statewide user network established and growing; active linker group of 66.

	Prior to Funding	At Termination of Funding
B. Building Information Resources	In Agency:	In Agency:
	1. Minimal staff access to research and other information databases, except by manual search of printed Educational Research Information Clearinghouse (ERIC) indexes.	1. KNOW-NET provides full access to all relevant research and other information databases, and provides full documents identified by a computer search when agency or ESD staff request them.
	2. Limited knowledge of agency program publications by staff who were not involved in their preparation.	2. KNOW-NET provides copies of agency publications relevant to an information request and has submitted these publications to the ERIC system for ready accessibility elsewhere. (Some 173 have been accepted into ERIC to date.)
	In Field:	In Field:
	3. Minimal access to research and other databases, or to the information resources of other major agencies such as the Washington Library Network.	3. KNOW-NET provides full access to bibliographic data about research and other program information and assistance in locating/acquiring full documents. KNOW-NET searches the WLN and other sources such as Resource & Referral Service (RRS), to augment database search results.
	4. Fragmented access to agency publication.	4. KNOW-NET provides agency publications as part of search results, targeted to individual information requests.
	5. Gaps in readily available resources bases for current areas of statewide interest.	5. KNOW-NET publishes resource books and handbooks to provide current resource information and strategies for accessing and using that information (see II. B. 2 for list of publications).
C. Building Linkages	In Agency:	In Agency:
	1. Limited agency staff capacity for linking teachers and administrators with major databases, model program information and/or state networks, except at conferences and face-to-face meetings.	1. Agency staff now serve as linkers to major additional information resources through KNOW-NET via telephone and mail, and have become aware of electronic information delivery systems through KNOW-NET orientation sessions on dissemination technologies. Agency staff use research information extensively in field R&D efforts (see A 3 above).

	Prior to Funding	At Termination of Funding
C. Building Linkages (continued)	2. Little use of telecommunications for information exchange.	2. Growing staff awareness of the uses of such systems as the Washington Educational Telecommunications Network (WETNET)* and the "SPIBB" electronic mail system, which is tied to the statewide data processing system.
	In Field:	In Field:
	3. Only sporadic awareness of what research information is available or of how to access it.	3. Greatly increased field awareness of the range of information resources available and how to get them through KNOW-NET/SPI.
	4. Little application of current research and other program information to local improvement needs, except as proposed by visiting R&D experts.	4. Teachers and administrators use KNOW-NET information services, targeted to their specific local requests, at the rate of 100-120 requests per month. (See Appendix II for examples of applications to local projects.)
	5. Little awareness of telecommunications for information exchange or delivery.	5. Awareness of potential of electronic information exchange greatly increased by KNOW-NET demonstrations.
	6. No field capacity for accessing and searching research and other relevant databases locally, targeting the information to local needs.	6. Some 255 linkers have been provided training in searching BRS' 80-plus databases. At this date, several school districts and secondary schools (and at least one ESD) are planning programs in local searching. KNOW-NET remains a back-up information source and adviser in the utilization/application process for the independent local searchers. KNOW-NET continues to demonstrate searching, access to other information systems and the use of telecommunications for information exchange in searching by microcomputer.

*Agency staff use of the University of Washington's WETNET (an audio teleconferencing network) was growing when funding for this system was terminated in June, 1983.

II. Major Components of the Project

A. Coordination/Leadership

1. Research and program information clearinghouse.

Over the five years of the project, KNOW-NET has developed its role as a research and program information clearinghouse, bringing to bear the whole range of available state, regional and national information resources on each information request received from agency staff, teachers, administrators and others in the education community. As a clearinghouse, KNOW-NET collects information from the field for such school improvement projects as the State Board of Education study of discipline and the Educational Service District media directors' survey of television/video resources used in schools. Staff provides input to databases like the State Facilitator's HI-NET Regional Network for Staff Development and submits state program materials to ERIC. Model program collection is a continuing thrust in several areas, such as self-study school accreditation and parental involvement programs. The bulk of KNOW-NET's clearinghouse activity, however, has been in the realm of coordinating and delivering to users the information resources of the following agencies and systems:

The 120 databases (including ERIC) collected into the Dialog and Bibliographic Retrieval Services (BRS) computer systems.

The Washington State Library (including educational journal and government document collections).

The Washington Library Network (academic, technical and public library resources of the five Pacific Northwest states).

The ERIC collection of indexes and microfiche (housed at the Superintendent of Public Instruction).

The Northwest Regional Educational Laboratory:
-Regional Exchange (state departments of education for Alaska, Idaho, Washington, Oregon, Montana and Hawaii)
-Dissemination services
-Resources in Computer Education (RICE) services

The National Diffusion Network/State Facilitator's Office (including state conferences which spotlight programs and the HI-NET Regional Network for Staff Development).

The State Commission for Vocational Education Resource Center and Resource and Referral "mini-lists".

The combined materials and expertise of our Superintendent of Public Instruction (SPI) program staff; the curriculum, media and computer staffs of the nine Educational

Service Districts; and a network of district linkers and curriculum staffs who, by interacting regularly with the KNOW-NET staff, have begun to provide a program knowledge base on which KNOW-NET can draw to meet others' needs.

2. Establishment of statewide linker network.

The first linker group consisted of SPI program staff who used KNOW-NET information to enhance their work in the field. A second linker group, much the larger, was developed beginning in the project's second year. This statewide linker network is currently comprised of a fluid core of about 100 multiple users of such KNOW-NET services as information searches, training in accessing and retrieving relevant information, and development of publications targeted to identified needs. The first members of this group were related to each other only by their work with KNOW-NET. As the involvement of increasing numbers of library media specialists became evident, their state professional organization, the Washington Library Media Association, took a more active organizational role, promoting participation in KNOW-NET at state conferences, in regional meetings and in their publication. At the same time, ESD curriculum staff developed linker training opportunities and identified interested school districts or teacher groups in their service areas who would like to participate in pilot projects to determine how research/program information could best be delivered to schools and how schools could best utilize such a service. (Volunteer linking seemed to be the answer.)

Early in the third year of the project, a core group of 75 field linkers was identified from these pilot projects in ESDs and from participants at the KNOW-NET presentations at conferences and meetings. More recently, newly hired ESD computer specialists have co-sponsored KNOW-NET training in database searching and in accessing online utilities such as The Source/EDLINE, further increasing interest in becoming a linker for KNOW-NET services. Even taking into account the changes in the actual make-up of this group due to job changes or growing or waning enthusiasms and interests, by the final year of the project, this group had grown steadily to its present level of about 100.

These multiple users link project services to others, either as designated (i.e., formally trained) KNOW-NET linkers or through their own enthusiasm. This group provides KNOW-NET with anecdotal data about local applications of information received from KNOW-NET, keeps project staff apprised of local school/district/ESD planning, and of actions taken toward setting of local systems for accessing research/

program improvement information. Members of the user network also alert the project to local training needs and requests.

Contact is maintained by KNOW-NET with members of this linker network through periodic telephone campaigns, periodic written requests for anecdotal input and evaluation of services, and the ongoing interchanges involved in providing project services.

B. Building Information Resources

1. Database searching.

Database searching by computer has provided agency staff and educators in the field with ready access to filed information, targeted to their immediate needs by professional reference librarian/educators. Search requests have grown by 100-120 per month during the final year of the project. The printouts from a search of BRS or Dialog are often supplemented by printed materials and referrals to individuals from the agencies and systems listed in A.1 above. Each search is personally "negotiated" with the requestor and follow-up searching is common, so that the information resources offered to users represents an increase of considerable magnitude over the information resources which existed for them before the project began. Full documents chosen from the search results by the user are provided for agency and ESD staff, from State Library and KNOW-NET resources. School district and other users are provided with free microfiche copies of ERIC documents, with forms for ordering other full documents at their own cost and with assistance in locating journal collections for following up on journal citations in the search results. (See Section III for data on numbers of users and examples of how the information has been applied.)

2. Publication of resource books and handbooks.

KNOW-NET publications have been designed to meet needs identified by asking the following questions:

a. Where do the gaps seem to be in easily available resource information?

b. What information resources are being requested by those working with target groups such as underserved populations?

c. What how-to (handbook) information do our linkers and users need that we could easily provide?

Asking the first question most often surfaced a need for collecting and publishing research syntheses and resource books on some current high interest topic, so that it would not be necessary to run the same information search over and over for different users and so that human resources and particularly in-state resources on the topic could be coupled with the printed materials collected or listed in a resource book. In response to this kind of need, KNOW-NET prepared and published:

- -Washington State Materials on School Discipline
- -Washington State Resource Book (abstracts of programs with materials or expertise to disseminate)
- -Sex Differences and Brain Development (resource guide)
- -Television in the Classroom: What the Research Says
- -Television in the Classroom: A Resource Guide
- -China: A Book of Activities
- -Parental Involvement; Microcomputers; ERIC References on Urban Development (bibliographies).

KNOW-NET also sought and received permission to reprint and distribute:

- -A Guide on Successful Uses of Technology in Rural Schools (produced under NIE contract to Educational Operations Concepts)
- -How to Help Your Children Achieve in School (NIE)

Asking the second question surfaced a need to work with other agency program staff and produce jointly some resource guides and handbooks to assist with specific school improvement efforts with certain target groups (underserved populations, those working on school excellence, high visibility groups who could help publicize the project, etc.). These joint efforts produced the following materials:

- -Math Equity Resource Book
- -Sex Equity in Education Network: A Model for Building Human Resources Networks
- -Discipline Strategies for Teachers of Problem Students (research synthesis)
- -Washington School Improvement Network Directory (school district program abstracts)
- -Education in China (following state educational delegation visit to China).

Finally, a handbook for linkers, and a second handbook for independent searching of databases, were produced by KNOW-NET to share project learnings and assist those in the field to make better use of both the project and their own growing expertise. These handbooks are:

- -Research Goes to School: How to Find and Use Information for Improving Schools
- -Research Goes to School II: How to Go Online to the Databases.

All the KNOW-NET publications were distributed first to the group(s) for whom they were produced, second to participants at KNOW-NET workshops, and then on request while they lasted, often following publicity in the agency newsletter to schools an/or professional association periodicals. All have been submitted to the ERIC system for wider availability.

C. Building Linkages

1. Training agency and field users of research/program information.

A major category of KNOW-NET training called "orientation" has provided the continual introduction of new users to this method of obtaining research and other program improvement information, targeted to their specific immediate needs. Despite the introduction to the ERIC system most educators received in graduate school, and the considerable efforts of federal program directors and users, the majority of the state's school staff had not generally been aware of the broad range of information available and had not generally known how to access this information at reasonable cost. The stimulus KNOW-NET has given to the accessing and applying of information from the sources listed in A. 1. above has most often begun at the presentation of the orientation sessions, although many new users have also been created by KNOW-NET linkers, independent of KNOW-NET staff.

Orientation sessions have been held several times, at least annually, within the agency (in addition to individual orientations for new program staff). In the field, orientations have been held in all ESDs, in several districts remote from the ESD office (such as Tekoa and Othello in eastern Washington and Montesano in southwestern Washington), in several big districts (such as Vancouver) where a sizeable group could be gathered, and at conferences and meetings of the following organizations (most several times):

Washington Association of School Administrators (WASA)
Washington State Association for Supervision and Curriculum Development (WSASCD)
International Reading Association (Washington Organization for Reading Development) (WORD)
Washington Library Media Association (WLMA)
Regional Chapters of the Association of Washington School Principals (AWSP)
Washington Association of Vocational Special Needs Personnel (WAVSNP)
Washington Education Association (WEA) Instructional and Professional Development Committee
Washington Council of the Teachers of English (WCTE) (scheduled).

The typical KNOW-NET orientation follows this format:

Introduction/Rationale/Description of funding source/materials handout
Demonstration of searching by microcomputer, using member of the audience at the keyboard (under KNOW-NET staff direction)
Explanation of search results and other resources to be received
Online demonstration of searching questions from the audience, using a second participant at the keyboard
Collection of information requests for later telephone "negotiation" and running by KNOW-NET searching staff
Explanation of upcoming training events and other services

Orientations at conferences and meetings are, of course, tailored to the time allotted, but online demonstration has been a key element since the project's third year, when KNOW-NET staff acquired the necessary modem and expertise to use a microcomputer provided at the presentation site for demonstration searching. Over 200 orientation sessions have been conducted to date.

2. Training agency and field linkers for project services

During the first year of the project, 90 SPI staff were oriented to the project and trained as SPI linkers, requesting computer searches, adding their own materials and expertise and providing the result to their constituents in the field. Beginning in the second year and continuing to the present, volunteer field linkers were trained and the most active among them have grown into the statewide linker network described in A.2.

Linker training has evolved over the five years of the project from a comprehensive overview of information sources and services toward an increasingly selective and sophisticated use of resources. Initially, linker training provided an exhaustive look at databases, other information sources, search negotiations, boolean operations, roles, a series of forms and procedures to use in contacting KNOW-NET, and a demonstration of various ways to present search results to others. As training progressed and both linkers and KNOW-NET staff became more knowledgeable about the real essentials of information retrieval (the linkers frequently attending several training sessions), the presentations were streamlined and information to be learned prioritized. With the publication of the first Research Goes to School (see B.2. above), participants could be referred for later study to material that was of lower priority, such as lists of available databases and costs of various resources.

A typical training session in the third and fourth years of the project included:

-Overview of project purposes/Funding source description/Materials handout
-Online search demonstration by microcomputer
-Explanation of search "negotiation" principles/Role-playing the negotiation/Group discussion of search question development through negotiation
-Procedures for linking to KNOW-NET/Delivering information to end users/Assisting end users with full documents and evaluation of materials
-Collecting search questions for later telephone negotiation and running by KNOW-NET searching staff.

Linker training sessions for a total of some 472 persons were conducted at SPI in the first year of the project and in ESDs in the second to fourth years of the project. (See C.3. and C.4 for more recent types of training.) The ESD sessions were conducted either as a first step for pilot projects staffs or in response to the requests of teacher groups who wished to receive the training.

3. Training independent field searchers.

In the last two years, with growing expertise on the part of linkers, growing interest on the part of their clients, and growing availability of microcomputers and modems, KNOW-NET has further developed training for linkers to provide lecture and hands-on instruction in the actual searching of online databases, while continuing to offer KNOW-NET information and searching services as previously. Initially, this training in how to search was provided in depth by contract with BRS and was offered only to these with prior experience as KNOW-NET linkers. Four such training sessions were held. Most recently, in the final year, the opportunity to learn database searching at a very simple, beginning level has been offered by KNOW-NET staff to new linkers as well, on the assumption that having had a beginning hands-on experience, participants will go on for further training to the university courses and periodic vendor-provided training sessions which become available. To date, 23 hands-on sessions have been provided by KNOW-NET to 255 linkers, with five more such sessions scheduled.

One result of this type of training activity is that participants report better understanding of what happens when they request information from KNOW-NET. Another result is that this type of training has led some districts and schools to plan to conduct their own computer searching activities, either now or when the federal funding for KNOW-NET is terminated. At this date, linkers in one district and four high schools are conducting their own searches of computer databases while 10 districts, seven high schools

and at least one ESD are planning for searching in the next school year. Other districts such as Yakima subscribe to Educational Research Service (ERS) or San Mateo Educational Research Center (SMERC).

KNOW-NET's role, even for those independent searchers, will continue to be one of providing extended information retrieval from the sources listed in A.1., and providing assistance and training as needs are identified. Staff assumes that continued training in searching, in use of other in-state information resources and in the use of dissemination technologies for information exchange (see C.4. below) will be requested. In addition, such handbooks as Research Goes to School II: How to Go Online to the Databases will probably be needed as well. SPI program staff assistance in evaluating and applying research/program improvement information will continue to be a need in the field for the foreseeable future.

4. Training agency and field users and linkers to be aware of electronic delivery/exchange systems for information.

As awareness of the availability of research and other program improvement information grows and as the need continues for both the information itself and skill in evaluating and applying it, KNOW-NET staff has felt that it should provide linkers with demonstration and experience not only with electronic information delivery systems but also with electronic exchange systems which might become accessible in the state. To this end, KNOW-NET has provided demonstrations of:

- -Access by microcomputer and modem to the encyclopedic databases and to bulletin boards and electronic mail systems (BRS, WLN, Electronic Information Exchange System (EIES), Source/EDLINE, BEST-NET, TECHNET, HI-TEN-BB)
- -Use of the electronic mail feature of the new statewide data processing system for sending research briefs, announcements, news of district workshops and activites (SPIBB)
- -Use of the State Facilitator's office regional online network for sharing staff development information (HI-NET)
- -Use of a statewide audio teleconferencing system (since terminated) (WETNET)
- -Participation in national video teleconferences with audio interaction (Project BEST, NDN)

KNOW-NET staff foresees continuing activity in this area, including monitoring the uses made of these and other developing systems, such as a higher education telecommunications network to which access for other groups may be provided, and evaluating the usefulness of these systems for

schools. KNOW-NET is also studying software which simulates or facilitates searching of the encyclopedic databases to determine the usefulness of this material for training (MicroSearch, In-Search, Search Helper, RICE demo, PFS File).

D. Treating Equity Issues

KNOW-NET has interpreted the project's role in the promotion of educational equity to be the following:

1. To work for equal access to information, including efforts at targeting traditionally underserved populations.

2. To team with SPI staff who have program responsibility for educational equity and support their efforts to serve those populations.

In working toward equal access, staff has:

-Trained SPI educational equity staff members to be linkers to minority and women's equity programs and groups in the field.

-Provided linker training to all SPI program staff, in all ESDs and additionally in some of the areas more remote from ESD offices (Othello, Tekoa, Montesano, Fort Worden).

-SPI linkers used KNOW-NET information with the field to conduct such activities as constructing a state plan for equity in science and mathematics, restructuring instructional programs for adult refugees, and assessing students with suspected learning disabilities.

-Field linkers provided KNOW-NET information to teachers and administrators who used it to conduct such activities as developing computer programs for the handicapped, improve ESL programs, review and revised service delivery to special needs students, develop an adult literacy pilot program, provide support for mainstreaming programs, develop computer programs for use with dropouts and develop curriculum for K-12 and adult Indian programs.

-Approached and offered services to statewide professional organizations who have volunteer responsibility for reaching all members of their profession throughout the state (WEA, WASA, WSASCD, WLMA, AWSP).

-Provided copies of Guide on Successful Uses of Technology in Rural Schools to the WASA Small Schools Committee for their review and upon approval supplied copies for their distribution.

-Supervised a KNOW-NET intern from United Indians of All Tribes Foundation and encouraged her to extend invitations to use project services to those Indian community agencies working with education.

-Supervised a second intern from a small rural district, Chewelah, in the northeast corner of the state.

-Attempted to reach all school staffs and to serve all who came forward for information, training or related assistance.

-Staffed a toll-free number for parents to call for information to help their children achieve in school.

-Trained special education and vocational education special needs staffs to be linkers to their groups.

As team efforts to support SPI educational equity staff projects, KNOW-NET:

-Developed with equity staff a collection of curriculum materials which were circulated on request to KNOW-NET.

-Prepared and published resource books:

Math Equity Resource Book
Discipline Strategies for Teachers of Problem Students
Sex Differences and Brain Development resource list
Sex Equity in Education Network: Model for Building Human Resources.

-Oriented the state's Sex Equity in Education Network, Multicultural Education Network and Migrant Education Center staff to project services and invited participation.

-Collaborated in the preparation of computer equity papers and presentations.

-Collaborated in development and preparation of a position paper on minority students and the "technology gap."

-Presented KNOW-NET orientations annually at vocational education special needs conferences.

E. Collaborative Relationships

1. Northwest Regional Educational Laboratory (NWREL).

Interaction with, and support from, the Regional Exchange staff and programs of the Northwest Regional Educational Laboratory have varied throughout the five years of the project. During the original development of the funding proposal, Regional Exchange staff were particularly helpful in:

-Assisting with conceptualization of the project goals and objectives.

-Furnishing historical perspectives and research materials on dissemination functions.

-Providing assistance in organizing and critiquing the proposal.

-Organizing contacts with dissemination staff and programs in other states.

-Developing flyers, brochures and informational materials to publicize the project.

Throughout the years of the KNOW-NET Project, several programs and categories of assistance offered by the Regional Exchange staff have been helpful in the successful maturing of the project:

-Soliciting yearly input to the Regional Exchange and NWREL priorities and directions. (This was particularly useful since the Principal Investigator served as representative to the Regional Exchange Advisory Board.)

-Encouraging regional cooperation and coordination in common areas of need. (This was very helpful since many common needs emerged to which the NWREL and Regional Exchange staff gave priority, such as staff development and institutionalization.)

-Opening up the Regional Exchange Board meetings to include selected local and intermediate school district staff. An example of the results this increased participation encouraged was the 1980 cooperative, NWREL-SPI statewide conference on staff development.

-Organizing and conducting regional conferences and workshops on topics of high priority to the states. Typical of conferences developed and offered during this time included those on discipline, student assessment, research into practice--all priorities of the agency in Washington State.

-Providing thematic staff development along with sharing and cross-fertilization of ideas with other dissemination project staff. Since the six states in the NWREL region were all at different stages in project completion, this sharing was particularly helpful. KNOW-NET staff were able to learn from others' experiences and as a result were able to tailor development of the Washington project to avoid difficulties pointed out by states who had completed earlier projects.

2. An ongoing beneficial relationship was maintained throughout the life of the project with the Washington State Library/ Washington Library Network. By interagency agreement, the WSL provided searching staff participation in a consortium subscription rate for Dialog databases, full documents and access to the combined colllections of academic, technical and public libraries (including some unique collections) in seven states, as well as back-up searching assistance when necessary to assist new staff. Information-sharing was common about such matters as searching software and over distance transmission of materials. Much of KNOW-NET's initial understanding of the linking process came from discussions with WSL administration used to working with local clients through a network of regional and local library staffs. It is expected that this relationship will continue to grow as both agencies address such concerns as defining limits of service, delivery of hard-to-find materials, training for local area staffs, and different levels of access to the Washington Library Network for local schools.

3. Assistance from the U.S. Department of Education, Region X staff was welcome during the writing of the initial KNOW-NET grant proposal and subsequently in the delivery of various materials to the field (ERIC duplicate microfiche, videotapes on telecommunications and the uses of computers in schools, etc.); in information exchanges with other in-state entities on such topics as building model program banks and networks; and in bringing together state teachers and administrators interested in examining telecommunications for educational uses.

   At one time back in 1982, when KNOW-NET staff were researching what equipment was needed to link a microcomputer with online databases for a presentation in eastern Washington, Region X staff was able to use its good offices with a computer vendor to get demonstration equipment to the site for KNOW-NET's use.

4. KNOW-NET was fortunate to participate in the Project B.E.S.T. (Basic Education Skills through Technology) experiment, in which the Association for Education Communications and Technology developed a series of technology demonstrations and information exchanges, under a contract with the U.S. Department of Education. From participation in Project B.E.S.T., KNOW-NET was able to provide school staffs in the state with firsthand participation opportunities in video teleconferencing with audio feedback, in electronic mail and in regional (two-state) audio teleconferencing, for information exchange on the program improvement area of computer education in schools. Through the formation of a Project B.E.S.T. state team, KNOW-NET was also able to bring selected specialists and administrators together on a

regular basis to identify computer training needs in the state. This team's work was in due course incorporated into the agency's successful proposal to the state legislature for funding for computer education across the state.

5. Finally, in addition to making extensive use of the ERIC system in stimulating the use of research results in schools, KNOW-NET was also able to make use of the ERIC Information Resources Clearinghouse project MicroSearch, in which portions of the database are put on floppy disk and then can be searched on a microcomputer without going online. This software has been especially useful in demonstrating the searching process to teachers and students in schools without having to go online to do so. A major KNOW-NET goal as the project neared completion has been to create independent searchers in local schools, this sort of software has been a good help.

III. Project Results

A. Impact

Year Two was the first year for which impact data was requested. A summary of the data collected then, and for the third and fourth years of the project, indicates that there were increasing numbers of information requests over the period, increasing numbers of participants in orientation/training/demonstration events through the second and third years with a leveling off in Year Four, and a generally steady flow of materials, both on request and by planned distribution. The impact reports also have documented the topics of information requests, and have included examples of the applications to which the research and other material provided by KNOW-NET were put. Appendix II contains a summary of the numerical data from those three impact reports.

An impact report for the first three quarters of the final year of the project may also be found in Appendix II. An extrapolation of the data to include the final quarter indicates that the final year's impact is consistent with that indicated by the data from earlier years. In the final year, the number of information requests has been holding at the Year Four level, the number of participants in training sessions is up slightly, the materials flow has increased, largely due to distributions to district administrative staff. Shifts in the proportion of teacher to administrator users have taken place from year to year, due in part to the various professional organization requests for presentations, which result in specific surges of use, and due also to KNOW-NET's staff attempts to compensate for these surges by subsequently emphasizing other groups. Topics of the information requests and sample applications of the information provided in Year Five are also included in this report.

B. Client Responsiveness and Satisfaction

Client responsiveness has generally been measured by the data on use of project services. As successive annual impact reports have demonstrated use of KNOW-NET information services has increased overall each year. Following the initial year of establishing those services, the data indicate this increase as follows:

Information Requests

	Year Two	Year Three	Year Four	Year Five*
Teachers	126	443	133	438
Administrators	80	129	369	312
ESD staff	27	58	59	57
SEA staff	443	178	210	162
Other	66	77	444	272
TOTAL	742	855	1,214	1,241

*8 months' data extrapolated to 12 months

As this data reflects spontaneous activity by clients (rather than activity initiated by the project, as is usually the case with training events and materials distribution), this data is perhaps the best gauge of client response to the project. (Heavy use in Year Two by SEA staff, in Year Three by teachers, in Year Four by community persons, reflects heavier targeting of SEA staff in the first year of the project, the drive to develop linkers in Years Two and Three and the establishment of the toll-free Parent's Line by the agency in Year Four.)

In addition, as discussed early in I.A.2., repeated information requests and multiple linking activities have characterized a group of about 100 project clients who have been identified on the basis of their multiple use as members of the KNOW-NET "statewide linker network."

Client satisfaction has been measured by evaluation surveys, at first following the filling of every information request and training event, and then, as the data from these surveys was absorbed into revisions of project procedures and services, less often. In Years Four and Five, while continuing to collect satisfaction data at each training event, the project has conducted evaluations of information services.

Data for the first eight months of information service to the field and to agency staff in Year Four are displayed in Appendix III. Satisfaction data collected at training events has consistently fallen below 4 and 5 on a scale of 1 to 5, 1 being low and 5 being high. The lowest ever training satisfaction rating was 3.5, and the highest was a perfect 5.0.

Comments have always been reviewed for use in revising or adapting services to client needs. The problem identified in this way which has been the least addressed by the project is the field users' difficulty in obtaining full documents, especially journal articles, following a computer search. Regional or cooperative collections of journals, participation in a telefascimile delivery system being implemented by the Washington State Library, contractual arrangements with a supplier or some other provision should be addressed by KNOW-NET, as funds and/or delivery systems become more readily available.

Another need not generally identified by clients (who tend to feel quite competent in analyzing information themselves, or do not wish to advertise any failure in this respect), is a continuing need for collegial assistance to clients in analyzing and evaluating information for applicability to the improvement projects for which it was requested. Continued training and support for local linkers should be provided to meet this continuing need.

C. Institutionalization

1. Funding.

From the beginning of KNOW-NET Project, the state's in-kind contribution has been considerable, surpassing federal dollars by the second year. The principal investigator, the project director and the librarian who contributed .3 FTE computer searching service to the project have always been state employees and have in fact now been assigned such major statewide school improvement programs as mandatory self-study for all public schools and the Practitioner's Workshop, which matches resource people with improvement projects in 50 schools each year. The project coordinator, originally hired on federal funds, was hired by the state in Year Four to implement statewide school improvement through computer education. All of these assignments place former KNOW-NET staff in key positions for application of the program improvement information they are well versed in accessing and selecting. They are also in a position to continue promoting similar applications by school staffs across the state, and to continuing promoting the wisdom of this process.

Staff positions which have been terminated with the end of federal funding are the information specialist and the project secretary. Also terminated is the designated telephone number of access point for field linkers and others to call to request project services.

The major source of funding which is being sought for restoring this staff and service is an "educational information clearinghouse" bill which twice passed the state senate in the legislative sessions of 1984 and 1985. An agency budget request for this same purpose was not approved by the legislature in its 1985 session, which ended in mid-June.

Appendix IV presents the clearinghouse bill, which has both agency and legislative support, though it was not passed out of the House Education Committee in the most recent session. Although this bill does not specify continuation of all the KNOW-NET services, it would provide funds for staffing the major activity which the agency cannot very well provide with out it--the centralized information searching and clearinghouse function. In addition, the bill would provide a means for supplying full documents to those needing them in the field.

2. Services at the Agency

Even without the passage of this bill, learning resources staff who have worked on the KNOW-NET Project continue to provide some information services through the Resource Information Center, namely assistance in a) individuals' manual searching of the ERIC collection and the Western

Library Network, b) routing of a limited number of search requests to reference staff of the Washington State Library, c) routing of educational journals and d) interlibrary loan of virtually all documents and journals which individual staff request, through the State Library and its networks.

Application of information thus located to school improvement projects continues to be provided by SPI program staff. Joint dissemination projects and publications with former KNOW-NET staff are on hold however, until further funding and staff can be provided.

3. Field Activity

It was a priority during the final year and a half of the project to provide field training in accessing research results and other relevant information locally (in schools and districts) with the back-up of ESD and SPI program staff assistance in the evaluation and application of information thus acquired. Limited continued training in local accessing continues, even with curtailed funding, using personnel and hosting provided by the Washington Library Media Association, educational service districts and colleges/universities. In this way, the cadre of field linkers remains in contact ("loosely coupled") with each other and SPI staff and is enabled to pursue information retrieval at their own sites as equipment becomes available. For example, building level linkers in Richland have prevailed upon the district administration to purchase a modem and subscriptions to BRS and The Source for providing computer searches to support district improvement efforts as well as providing information searches for teachers and students. In big districts such as Spokane, Edmonds and Shoreline (North Seattle), district-level linkers now have both equipment and subscriptions for searching the BRS databases. In all cases, the key staff are those who were trained by KNOW-NET.

Activity with certain of the telecommunications functions such as the electronic mail feature (SPIBB) of the state data processing network continues as well as subscriptions primarily useful for demonstration purposes such as The Source, the state school directors' electronic bulletin board, AECT's TechCentral and a full-text newspaper database, DataTimes. The advent of ERIC on CD-ROM optical digital data disks will provide a future opportunity for additional training in computer retrieval and application of program information, as district learning resources supervisors and some SPI staff have already been introduced to CD-ROM by former KNOW-NET staff and the Washington state Library. As other improvements to accessing systems comes along, former project staff are committed to promoting their use toward the goals delineated in the five years of the project--retrieval, exchange and application of research results and other relevant program information for school improvement in Washington State.

IV. Project Learnings and Conclusions

Most of the KNOW-NET Project "learnings" are corroborations of others' earlier findings about the nature of dissemination and diffusion processes and the nature of change in education. However, elements of the experience here may lend additional validity to others' findings or may serve to tip the scales in favor of a certain approach to other similar settings.

IDENTIFYING LINKERS

For example, KNOW-NET's most consistent single finding has been that linking R&D information to school districts is most effective when carried out at the local level by people whose previous training, ongoing role and interest predispose them to work through this process. Providing the information resource to these people gives them a quantum leap toward success in the role in which they already see themselves. ("Most effective" means to us that the R&D information we select and provide is targeted and used in the development of institutionally supported school improvement projects to the satisfaction of the linker's constituents, repeatedly.)

In Washington State, the most effective linking of our R&D information to school districts has been carried out by library media specialists at the district and school levels. These specialists have previous training in information retrieval and targeting, they work at all grade levels and in all subject areas and have always sought outside resources. Not all these specialists make good linkers--as with any group, those with the interest and energy self-select themselves and in Washington State have demonstrated those traits by attending training after training, to the point of self-instruction and practice following KNOW-NET sessions. These front runners have become role models for others and through their professional association have made linking to KNOW-NET the thing to do in their profession here. Two outstanding examples are a district instructional resources coordinator in a suburban Seattle district and a high school library media specialist in an eastern Washington city (Richland). The first linker has been the major information supplier and interpreter over three years for his district's study committees, which developed the district's plans for revision first of the middle school and then of the high school and elementary level curricula and programs. This person has now acquired the necessary equipment and subscriptions to conduct computer searches of educational databases himself. With his understanding of KNOW-NET, he calls on the SEA's resources to augment what he can do himself. The second linker has made extensive use of KNOW-NET information to establish her local information service as a necessary component in her district administrators' and teachers' planning on a wide array of curriculum and management topics. She also has taken the leading role in developing some 11 other building level linkers in her geographical area, setting up with the ESD training sessions, monitoring KNOW-NET staff travels, and arranging for further training

sessions and visits with administrators by KNOW-NET staff. Both these linkers have been presidents of the Washington Library Media Association, vocal supporters during their terms of office and presenters for KNOW-NET at other associations' conferences and meetings.

It should be noted that many ESD staff serve as linkers, but that their reduced staffing makes linking just one of many services which most perform.

STATE EDUCATIONAL AGENCY (SEA) ROLE

This is not to say that the SEA has no role beyond that of provider of the resource and publicizer of its availability. Program-related information, unlike funds or pre-packaged models, comes in many forms and from an array of different sources at different locations. No local linker has the personal clout, time or institutional support for monitoring and accessing these sources and selecting appropriate information. At the SEA, KNOW-NET staff performs this information service function. Additionally, program staff ("SPI linkers") link R&D information to the state organizations, task forces and various constellations of districts and ESDs with whom they work. These SEA linking efforts have impact at the policy level which complements or stimulates planning at the local level. And of course, the SEA performs the major training needs assessments and manages the delivery of training.

The relationship with linkers KNOW-NET has found to be most beneficial is a collegial one as opposed to a directive or supervisory one. Sharing expertise (i.e., showing how we design and run a computer search, how we locate other kinds of information etc.) has been found to increase interest in the process. Ongoing personal contact and follow-up in the form of information exchanging, offering further material come to light since earlier requests, requesting linkers to exchange experiences with other linkers and/or stand in for KNOW-NET at certain events--these kinds of contacts have been the most productive. KNOW-NET staff encouragement for linkers' independent efforts at information retrieval, especially by computer, has also resulted in loyalty, in further linking efforts and in promotion of the linking process. Productive collegiality has also been fostered by frank joint appraisals of the project services and of the limitations as well as the advantages of search prodcuts--e.g., the limitations of abstracts, the difficulties surrounding the acquisition of full documents, especially journal articles, and the fact that not all documents in a search packet will be on target.

STATE CAPACITY

KNOW-NET's experience has certainly shown that teachers and administrators in this state will indeed request and use research results in planning, if they know R&D information is accessible and, for the most of them, if they have local or telephone assistance in following up on initial search results to find what will be most useful to them. The experience at both state and local levels indicates also that the incorporation into action plans of what is learned from the searching process depends on the degree to which the

information retrieval is tied in with existing programs rather than being seen as a separate operation.

Appendix I

Selected Uses of KNOW-NET R&D Information

by Agency Staff

Selected Uses of KNOW-NET R&D Information by Agency Staff

1. Director of Testing and Evaluation:

   Used information on the impact of class size on several variables, to assist in planning and presentations.

2. Administrative Assistant to the State Superintendent:

   Used information as a basis for presentations and proposed legislation on administrative training programs.

3. Supervisor of Language Arts:

   Used model program/curriculum information in developing state guidelines for English/Language Arts.

4. Supervisor, Health and Physical Education:

   Used research results in developing state curriculum guidelines project.

5. Supervisor, Science and Environmental Education:

   Used information in developing state curriculum guidelines, in construction of the state plan for equity in science and mathematics, and in technical assistance to science educators in the field.

6. Director, Adult Refugee Project:

   Used bibliographies of instructional materials developed by KNOW-NET to supply adult refugee field sites with source of materials for ESL teaching.

7. Regional Coordinator, Special Education:

   Used search results in development of a learning disabilities evaluation project and in individual technical assistance activities for assessment of suspected learning disabilities.

APPENDIX II

Summary of Numerical Data From Impact Reports
Second Through Fourth Years

Impact Report for Fifth (Final) Year

KNOW-NET Project

Summary of Data for Second Through Fourth Years
(July 25, 1981 - July 24, 1984)

Kinds of Services Provided

	Year	Total No. of Direct Users (Est.)	Information Searches	Orientation to Research & Databases	Linker Training Provided	Dissemination Technology Demonstration	Project Materials Distributed
Teachers	2	2546	126	124	55	241	2800
	3	2507	443	465	100	147	3117
	4	1483	133	168	143	318	2272
School Building Administrators, District Personnel	2	2112	80	112	31	149	2790
	3	978	129	395	23	68	1190
	4	1219	369	141		110	1101
*Intermediate Unit Personnel	2	20	27	30	2	5	112
	3	36	58	27	4	17	128
	4	27	59	2	2	31	95
*SEA Personnel	2	98	443	73	14	100	179
- Chief & Admin. Staff	3	88	178	26		66	48
- Other SEA Staff	4	90	209	10		63	570
State Board of Education/ School Boards	2	301	2	17		1	5000
	3	4	14			4	(through
	4	6	6				SBE)
State Legislators (on request)	2	1					1
	3						175
	4	5	5	5			15
Parents/Community	2						
	3	55	50	35			
	4	367	367	10			215
Students	2	85	47	38			190
	3	75	1	71		8	71
	4	90	44	90			180
Others (Name) College Staff Prof. Assoc. (not included above)	2	100	17			3	200
	3	22	12	12		10	56
	4	28	22	5	8	20	137
THREE-YEAR TOTALS		Est. 4114*	2841	1856	382	1361	11,696

*Average of totals for each year

KNOW-NET Project

Impact Report

Year Five

July 25, 1984 - July 24, 1985

National Institute of Education

Regional Program

ANNUAL PROJECT REPORT ON ESTIMATED IMPACT OF PROJECT ACTIVITIES

Title of Project: KNOW-NET Project (Washington)

Project Director: Dr. Joan Newman

Date: April 24, 1985

INSTRUCTIONS

Column I: Please give your best estimate of the numbers of people in each category who have been direct users of your services in the past year (or three project quarters). A direct user is identified as the person for whom the service was intended. For example, if a principal or school clerk calls with a request for information for a district administrator, the information would be put in the category of "district personnel."

Column II: Briefly describe the kinds of services that were provided to each group, i.e., information packets, workshops, consultations on new programs, etc. Be as specific as your current record keeping will permit.

Please submit these forms to your project officer.

KNOW-NET Project

Year Five Impact Data

Kinds of Services Provided

	Total No. of Direct Users (Est.)	Information Searches	Orientation to Research & Databases	Linker Training Provided	Dissemination Technology Demonstration	Project Materials Distributed
Teachers	1361	492	256	122	297	2119
School Building Administrators, District Personnel	1589	408	128	18	135	2534
Intermediate Unit Personnel	30	38			29	768
SEA Personnel						
- Chief & Admin. Staff	4	108		8	6	138
- Other SEA Staff	87					
State Board of Education	2	3				
State Legislators (on request)	6	6				4
Parents/Community	382	128	10		10	857
Students	105	22	95		95	
Others (Name)						
College Staff	50	36				286
Prof. Assoc.	10		10		10	10
China, Japan visitors	24	24				24
TOTALS	3540	1241	499	158	602	6720

Relationship of NIE Priorities to Project Activities

(A) Improvement in student achievement in the basic educational skills, including reading and mathematics.

1. KNOW-NET provided research results and other information to agency staff and the field in the following areas:

Children's literature and story structure/plot.
Heterogeneous and homogeneous grouping in reading.
Santa Clara readiness.
Content area reading, grades 4-6.
Teaching of Beowulf.
Effective writing across high school curriculum.
Handwriting instruction K-6.
High school history taught by historical era.
Industrial Arts.
Teaching Shakespeare to elementary gifted.
Spelling instruction K-12.
Journal writing and publishing - elementary.
Individualized spelling, grades 1-6.
Math K-8.
Language arts K-1.
Primary language arts model.
Humanities in middle school.
Heterogeneous/Homogeneous grouping, high school English.
7th grade algebra.
Evaluating elementary reading programs.
Literature and curriculum 7-12.
Writing process K-6.
Junior high study skills.
Outdoor education K-6.
Library curriculum K-12 models.
Health and safety.
Parent teacher conferences.
Handwriting - published series - transition printing.
Study skills - secondary.
Issues instructional materials, K-12.
Reviewing sources for textbooks.
Language arts--effective program, K-12.
Sex education.
Study skills.
Science-simulations-demonstrations.
Physical education curriculum-time.
Physical education - 6-12 - student attitude.
Music, art, physical education - scheduling, elementary.
Spelling and penmanship instruction.
Band/music elementary.
English electives.
Math curriculum K-8.
Writing across the curriulum.
Health education elementary, integrated or innovative.

Language experience approach.
Class size and reading remediation.
Grading middle school students in physical education.
Science SLO's and curriculum.
Uses and abuses of 16 min. film in classroom instruction.
Latest research on teaching spelling K-12.
High school level materials on teaching proofreading to office (clerical) staff.
Educating adolescents on teenage pregnancy.
Methods and materials for teaching alphabet in kindergarten.
How to teach Hamlet and MacBeth.
Effective strategies for teaching story problems (math) elementary.
Math curriculum changes due to computers.
SLO's: history, importance, measurability. Developing SLO's for small high schools.
Language abstracts for historical comparison project in advanced 8th grade history.
School library media facilities.
Library services.
High school library program.
Advanced placement honors curriculum.
Social studies 9-12.
Integrating language arts.
Reading/strategies/assignments/children.
Curriculum objectives/language arts.
Problem solving strategies.
English/Language arts instruction.
Implementation-writing curriculum.
Study skills program.
Student self-management skills.
Math "Their Way."
Shakespeare, McBeth and Elizabethan England/Bibliographies.
Media selection policies.
Music education curriculum.
Geography - Apple Computer.
Business course objectives.
Language art - integrated curriculum.
Reading at the kindergarten level.
Imagery for science instruction.
Interdisciplinary math.
Economics education in high school.
Industrial Education in junior high school.
SLO's for student library aides.
Supplementary reading at the primary level.
Seatwork.
Assessment of student listening skills.
Handwriting readiness, left handed instruction and grammar instruction.
Social studies update.
Student mobility plus reading/math achievement.
Spelling - learned or genetic?
Teaching for independence.
Competencies for high school graduation.

Teacher made tests.
Secondary school laboratory science.
Phonics and reading.
Health hazards and art.
Bodybuilding and health hazards.
Cloning/gene splicing.
Martin Luther King, Jr.
F. Scott Fitzgerald.
McGuffey reader.
Sports injuries.
Research on new science curriculum.
Contrastive linguistics.
Fine arts/music/dance.
Reading and eye/hand development.

2. Applications of information on the topics above include:

   (a) A district textbook selection committee used search results to find and evaluate spelling texts for district adoption.

   (b) A task force used KNOW-NET information to develop district curriculum in foreign language.

   (c) An ESD staff development manager used research results on student self-esteem to build an inservice delivered to teachers and administrators.

   (d) A middle school principal used KNOW-NET information to integrate (add) health education into existing curriculum without lengthening the school day.

   (e) Three teachers and their principal used research information on critical thinking skills to develop a building-wide program; the same principal and five other teachers provided KNOW-NET materials on communications to a district committee developing language arts curriculum.

3. KNOW-NET continued to provide referrals to agency, ESD and district program staff, as well as copies of NIE's "How to Help Your Children Achieve in School" to callers on the "Parent's Line," a toll-free number provided to parents to call for information about how to help their children do better in school.

(B) Overcoming problems of finance, productivity and management in educational institutions:

1. KNOW-NET provided research results and other program information in response to requests on the following topics:

Teacher competency tests.
Staff development models.
Libraries: evaluation standards.
Professional growth.
Provisions of Chapter II funding.
Design for new library media center.
Organization of library service.
Effective use of substitutes.
High school registration models.
Immature behavior - school entrance.
Special Education accounting.
Comparative study of length of school day/year.
Textbook management system.
Effectiveness of parent-teacher relationship.
Staff morale.
Reducing class size.
Impact of collective bargaining on school finances.
School size/educational effectiveness.
Teacher Effectiveness/Student Achievement (TESA).
High school teachers teaching subjects not in major field.
Teacher transfer.
Teacher Early Childhood Education (ECE).
Job rotation systems public and private.
Comparisons between educational and business administrators.
Counselor: Psychological services - elementary.
Interviewing teachers.
Middle schools/magnet schools.
Bond and levy campaign.
Seat belts and school buses.
Impact of fixed/flexible library schedule.
Middle schools using block concept.
Librarians roundtable on space planning.
Peer coaching/teaching.
Hatch amendment - student's right to know.
Elements of teaching other than Instructional Theory Into Practice (ITIP).
School insurance.
Research on square footage a custodian can reasonably clean.
Combatting graffiti on school walls.
Open campus high schools.
Administrator's role in school community relationship.
Evaluation of kindergarten programs.
Multi-age, multi-grade elementary education.
Longitudinal effects of early school entrance for gifted.
Grading elementary students.
Transitional first grade.
Test scores for administrative change.
Mastery learning, elementary.

Primary, intermediate resource centers.
Retention, K-12.
Screening tools for 5-7 years.
Gifted and independent study.
Ungraded primaries.
Gifted education.
Developing interpersonal skills in the classroom.
Preschool identification of gifted.
Quality circles and education.
K-5 report card systems.
Jr. High gifted programs.
Transition to middle school.
Grading practices.
Educational objectives, scope and sequence
Raising student achievement, K-5.
Homework policies.
Student achievement and the single parent home.
School counselors training and preparation.
Time on task.
Double-shifting--elementary.
Tests for selection/jr. high accelerated.
Instructional strategies--reducing absenteeism.
Recent challenges--Washington state.
Learning/cognitive styles.
Staff decision-making plan.
Interpersonal relations for school change.
Test for structure of intellect.
Pre-referral intervention.
Teacher/district goal-setting for evaluation.
Community relations and school libraries.
Corporal punishment.
Job descriptions for counselors.
Adjustment problems, emotional/social.
Safety equipment for eyes.
Statewide plans for parent involvement.
Win-win collective bargaining.
Orange juice and hyperactivity.
Academic achievement and sports.
Leadership characteristics.
Homework/parent involvement.
Peer influence.
Off-air copyright.
School board policy-censorship.
Color and behavioral control.

2. Applications of the information provided include:

   (a) A former metropolitan school superintendent (in the state), now acting as a consultant to other districts, used current research and other reports on Reduction-In-Force (RIF) policies and their impact on the quality of instruction to assist in revising district policies.

(b) A high school principal used materials on student motivation to provide inservice for her staff and materials on critical thinking skills to establish a computer networking project in her district.

(c) Information and materials supplied by KNOW-NET were used by a district administrator to develop a workshop on non-adversarial bargaining.

(d) Research results on counseling victims of sexual abuse and on adolescents who are incontinent was used by a school counselor to work with students and to develop programs with a district psychologist.

(e) A school administrator used information to develop a school advisor-advisee program for the coming school year.

(f) An ESD linker used research results on health/wellness programs to assist a school district to choose new curriculum and to involve community members in the selection.

(g) A school linker provided materials on discipline to a teacher committee which used the information to develop a new school discipline plan.

3. KNOW-NET continued demonstrations of cost-saving technology for information exchange (electronic telecommunications) and provided a handbook for accessing both some of these systems and the major systems for information retrieval (Research Goes to School II: How to Go Online to the Databases). This handbook has been widely distributed to administrators by KNOW-NET, by linkers and by the ESDs.

(C) Improving the ability of schools to meet their responsibilities to provide equal educational opportunities for students of limited English-speaking ability, women, and students who are socially, economically or educationally disadvantaged.

1. KNOW-NET provided R&D and other information to agency and field personnel in the following topic areas:

Education programs for native Americans.
Slingerland.
Time-out - grades 7-12 special education.
Reading methodologies and learning styles for learning disabled students.
Equal Rights Amendment (ERA).
High risk first grade.
Computerized Individualized Educational Programs (IEP) - preschool.
Computers and equity.
Sexually abused adolescents.
Direct instruction and early childhood education.
Effects of monetary rewards on severely and profoundly retarded.
Left handed instruction.
Programs to reduce minority discipline problems.
Women and mentors.
Extended school year special education.
Time on task for special education.
Definitions of equal education.
Childfind.
Minorities and science, grades 9-12.
Reinforcement of special education (not rewards).
Women - American art annotated bibliography.
Emotional and mental child abuse.
Effects of computers in teaching hyperactive children.
Social studies for low readers.
Phonological disorders (stuttering).
Longitudinal studies of effectiveness of early intervention with preschool handicapped.
How black students learn.
Developmentally delayed kindergartners.
Tutoring Native Americans.
Alcohol and substance abuse - American Indians.
American Indian student dropouts.
Community vs. boarding schools for American Indians.

2. Applications of the information provided include:

(a) A school counselor used information supplied on the use of Ritalin to assist teachers in understanding and working with mainstreamed students for whom the medication had been prescribed. Subsequently, this counselor used information on learning styles to work with teachers of other mainstreamed students.

(b) A parent representative on a district effective schooling committee used KNOW-NET materials on easing racial tension to educate herself for more constructive participation.

(c) An SEA linker used KNOW-NET information on ethnocentrism to provide workshops for teachers of students from other language and cultural backgrounds in understanding their own biases.

(d) A district special education coordinator used material from KNOW-NET to prepare evaluation criteria for student teachers in special education for the coming year.

(e) An Indian center education director developed drug/alcohol curriculum from studies and programs information requested from KNOW-NET (much of it from SEA and in-state sources).

3. KNOW-NET staff is currently cooperating with the SEA educational equity staff to produce a resource book on model programs in global education.

(D) Preparation of youths and adults for entering and progressing in careers.

1. KNOW-NET responded to requests for information on the following topics:

   Criminal justice education.
   Job skills - Native American.
   Job skills for today's market.
   Career awareness K-6.
   Vocational education and academic education - nontraditional curriculum.
   Resume' writing.
   Construction management - U.S. construction organizations.
   Electronics.
   Advisor guidelines for vocational and higher education.
   Marine an fishing education.
   Vocational education in rural schools.
   School office work programs independent of high school.
   Education and employment (income).
   California Occupational Preference System.
   Pilot schools/occupational information.
   Employability skills at the high school level.
   Middle school advisory room/inservice.
   Universities in Southern California offering classes in TV production and technology.
   Vocational education, grades 1-12.
   Vocational education objectives for two-year colleges.

2. Applications include: SEA vocational staff requested and used curricular and model program information from KNOW-NET to develop recommended student learning objectives and curriculum guidelines for vocational agriculture programs across the state.

(E) Overcoming the problems of the nontraditional student, including the older and the part-time student and the institution the student attends.

1. KNOW-NET provided R&D information on the following topics:

   Innovative practices with high school dropouts.
   Home education and socialization.
   Deviant behavior - institutionalized juveniles.
   Dropouts (prevention).
   AV materials - Refugess.
   Transportation for adult learners.
   Follow-up studies of high school graduates.
   Adult learner memory.

2. Applications of the information provided include: District administrative staff used information on model adult literacy programs to develop a pilot program for underskilled adults who have low or no reading skills.

(F) Encouraging the study of language and cultures, addressing both national and international concerns.

1. KNOW-NET provided information requested on the following topics:

   Foreign language instruction K-12.
   K-6 resources for global education.
   South Africa.
   Ethnocentrism.
   Graduation requirement/second languages.
   Chinese revolution and Russian revolution.
   English as Second Language (ESL) compared to bilingual education.
   Conferences in Australia for libraries.
   Global education from the administrator's viewpoint.
   Athapascan.
   Language acquisition and ESL.
   Multi-ethnic resources.
   Foreign Languages in Elementary Schools (FLES) - Textbooks and ERIC documents.
   Bilingual Education Bibliographic Abstracts (BEBA).
   Education in Japan, K-12.

2. Applications of the information include:

   (a) SEA staff provide resources and interpretation to an association of social studies teachers developing secondary curriculum on sub-Saharan Africa.

   (b) District staff in a metropolitan, multi-ethnic area used studies on development of social studies curriculum on South Africa to begin building a curriculum unit for district schools.

3. KNOW-NET staff is currently serving on a community-based task force in the Puget Sound area developing international exchanges between high schools in Washington and others in Pacific Rim countries. KNOW-NET staff is providing input on instructional applications of telecommunications for such an exchange (e.g., for what instructional/communications purposes could electronic mail be used? What information could best be exchanged using videotape, using video teleconferencing, etc.?).

(G) Improve dissemination of educational research and development.

1. In the program improvement area of integration of computer education into the curriculum, KNOW-NET provided information on the following topics:

Electronic computer games.
Math - computers - middle and high schools.
Elementary reading programs and computers.
Computers- astronomy - secondary.
Computer Assisted Instruction - business education.
Keyboarding skills - effect on word processing.
Physical education and computers.
Training for electronic searching - high school students.
Computer literacy for teachers to teach.
Thinking skills using computers.
Structures of the intellect.
Software to generate surveys for staff development, etc.
Visual learning - videodiscs.
Computer software (library).
Computers and productive sentences.
Artificial intelligence - organic.
"Quill" reading and writing with a microcomputer.
Computers and home economics.
Math-Apple computer program.
Apple software for history.
Computers and elementary curriculum.
Teacher computer competencies.
Biofeedback and computers.
CAI effectiveness in junior high school.
CAI for library aides.
Impact of technology on education.
School libraries and networking.
Computer Assisted Instruction - reading.
Copyright and downloading from DIALOG.
Satellite communications for distance delivery of education.
Apple or IBM programs for study skills.

2. Information on computer integration into the curriculum was applied in such ways as:

   (a) A school computer specialist used R&D information on computer education to plan school curriculum for the coming year.

   (b) A home economics teacher used information on computer education to plan curriculum modifications.

   (c) SEA staff used repeated updating from KNOW-NET for planning programs for computer information exchange with ESDs and school district staffs.

(H) KNOW-NET provided information in the following areas, in addition to the NIE priority areas identified above.

Accidental deaths.
Meaning of "lamp of learning" logo.
Albert Camus.
Anorexia nervosa.
Reasons Americans move.
School phobia.
Voting/elections/citizen participation.
Futures (of society).
UN volunteer service.
Alcoholism.
Premenstural Syndrome (PMS), holistic approach to.
WLN - quickfacts.
Right of birth parents and adopted children getting in touch.
Listener behavior: rock vs. other music.
Iranian hostage crisis.

See also Appendix I for additional SEA staff activities using R&D information provided by KNOW-NET.

Appendix III

Tally of Satisfaction Surveys

SPI Linker Response

Field Linker Response

KNOW-NET

Project Assessment
1985

SPI Staff Linker Response

Please indicate your degree of satisfaction with KNOW-NET services.

	Low High
The KNOW-NET staff was helpful in meeting your needs.	1 2 3 4 5 Avg. 4.9
The search results packet(s) contained enough relevant material.	1 2 3 4 5 Avg. 4.1
It was possible to obtain the full documents (ERIC documents or journal articles) you needed.	1 2 3 4 5 Avg. 4.2
Overall Rating - in comparison with other sources of school improvement information	1 2 3 4 5 Ave. 4.7

KNOW-NET

Project Assessment
1985

Field Linkers Response

Please indicate your degree of satisfaction with KNOW-NET services.

	Low High
The KNOW-NET staff was helpful in meeting your needs.	1 2 3 4 5 Avg. 4.7
The search results packet(s) contained enough relevant material.	1 2 3 4 5 Avg. 4.3
It was possible to obtain the full documents (ERIC documents or journal articles) you needed.	1 2 3 4 5 Avg. 4.0
Please rate your satisfaction with the training.	1 2 3 4 5 Avg. 4.8
Overall Rating - in comparison with other sources of school improvement information	1 2 3 4 5 Ave. 4.5

Appendix IV

Educational Information Clearinghouse Bill

SENATE BILL NO. 3352

State of Washington 49th Legislature 1985 Regular Session

by Senators Gaspard, Bauer, Kiskaddon and Patterson

Read first time 1/25/85 and referred to Committee on Education.

AN ACT Relating to education; and adding a new section to chapter 28A.03 RCW.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. Sec. 1. A new section is added to chapter 28A.03 RCW to read as follows:

(1) Recent and expanding activity in educational research has produced and continues to produce much valuable information. The legislature finds that such information should be shared with the citizens and educational community of the state as widely as possible. To facilitate access to information and materials or education, the superintendent of public instruction shall act as the state clearinghouse for educational information.

(2) In carrying out this function, the superintendent of public instruction's primary duty shall be to collect, screen, organize, and disseminate information pertaining to the state's educational system from preschool through grade twelve, including but not limited to in-state research and development efforts; descriptions of exemplary, model, and innovative programs; and related information that can be used in developing more effective programs.

(3) The superintendent of public instruction shall maintain a collection of such studies, articles, reports, research findings, monographs, bibliographies, directories, curriculum materials, speeches,

conference proceedings, legal decisions that are concerned with some aspect of the state's education system, and other applicable materials. All materials and information shall be considered public documents under chapter 42.17 RCW and the superintendent of public instruction shall furnish copies of educational materials at nominal cost.

(4) The superintendent of public instruction shall coordinate the dissemination of information with the educational service districts and shall publish and distribute, on a monthly basis, a newsletter describing current activities and development in education in the state.

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